



SIRTF

Space InfraRed Telescope Facility (*SIRTF*)

Observer's Manual – Version 2.1

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Version 2.1 Summary of Changes

This is a summary of the changes in version 2.1 based upon version 2.0

Chapter 1 changes:

- (1) Updated to reflect current document versions

Chapter 6 changes:

- (1) the sensitivities in the Cookbook example were adjusted to match those in the Sensitivity section;
- (2) a typo in table 6-8 (sensitivity for 30-sec, 4.5-micron frames) was corrected;
- (3) the surface brightness sensitivity was added to the text;
- (4) IRAC PSF discussion was modified;
- (5) the size of the gap between IRAC fields of view was updated;
- (6) some minor wording changes and corrections were made throughout the chapter.
- (7) section 6.3.3.3 Data Reduction Software was corrected

Chapter 7 changes:

- (1) Revised the definition of the high-res BQD data product in section 7.3.2
- (2) Added detailed descriptions of current performance characteristics in section 7.1.3.2
- (3) Added a description of the IRS peak-up data products in sections 7.1.7.2 and 7.3.2
- (4) Revised the IRS Science Data Pipeline flowchart (Fig. 7-31).
- (5) Clarified the description of the Step-and-Stare operations in section 7.1.7.1

Chapter 8 changes:

- (1) Update to section 8.2.1.2 (description of 24micron photometry and super-resolution)
- (2) Update to Table 8.8 (integration time per cycle)

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1 Philosophy and Scope of the SIRTF Observer's Manual

The *Space InfraRed Telescope Facility* (SIRTF) is the fourth and final element in NASA's family of Great Observatories and represents an important scientific and technical bridge to NASA's *Astronomical Search for Origins* program. The Observatory carries an 85-centimeter cryogenic telescope and three cryogenically cooled science instruments capable of performing imaging and spectroscopy in the 3.6 to 160 micron range. SIRTF will be launched on a Delta 7920H from NASA's Kennedy Space Center into an Earth-trailing heliocentric orbit in December 2001. While the SIRTF cryogenic lifetime requirement is 2.5 years, current estimates indicate that achieving a goal of a 5-year cryogenic mission is possible.

1.1 Intended Audience

The *SIRTF Observer's Manual* (SOM) is the essential technical reference manual for SIRTF observers. The SOM provides technical information about the design, performance and operational constraints of SIRTF. It includes technical information on planning, editing and submitting SIRTF observations. Each edition of the SOM will have a companion *Call for Proposals* that includes the programmatic information needed to submit a SIRTF proposal.

This version (2.1) of the SOM is to be used along with the *SIRTF Legacy Science Call for Proposals V2.0* (LegSci CP) for preparation of Legacy Science proposals.

These documents are available in various electronic formats on the public SIRTF/SCC Web site at <http://sirtf.caltech.edu/>.

1.2 Document Organization

The SOM is divided into three major parts: the Introduction (Chapters 1 and 2), the Observatory chapters (Chapters 3 to 5), and the instrument-specific chapters (6 to 8). The Observatory section includes a technical description of SIRTF, its operational capabilities and constraints, and information about how SIRTF observations are planned and specified.

Each instrument has its own chapter, prepared by the instrument development team. All three chapters follow the same basic design and include a basic technical instrument description, and overview of the instrument's performance and capabilities, a description of its observing modes, advice on how to best use them, and a discussion of the data reduction pipeline and the characteristics of the data. The data analysis related material should be significantly expanded after the Launch and In-Orbit Checkout (IOC) of the Observatory.

1.3 Document Update Plans

This manual will be maintained by the SSC and will be updated after IOC and for each *Call for Proposals*. Legacy Science proposers should note that this version (2.1) contains updates based on currently on-going integration and test activities. The information in this version will provide the technical basis for Legacy Science proposals, and the SIRTF Time Allocation Committee will judge the proposals based on the technical information in SOM v2.1.

In addition to maintaining the SOM, the SSC will maintain instrument calibration and performance updates on the instrument World Wide Web pages at <http://sirtf.caltech.edu/>.

1.4 Other Relevant Documents

There are four documents needed to plan, prepare and submit a SIRTF observing proposal. For the SIRTF Legacy Science program, the following are available from the SSC SIRTF World Wide Web pages:

- ◆ *SIRTF Observer's Manual* (version 2.1 dated August 1, 2000)
- ◆ *SIRTF Legacy Science Call for Proposals* (version 2.0, dated June 30, 2000)
- ◆ *SIRTF Observing Policies* (version 2.0, dated June 30, 2000)
- ◆ *SPOT (SIRTF Planning Observations Tool) User's Guide* (version 1.1, dated June 30, 2000)
- ◆ *SIRTF Reserved Observations Catalog (Version 1.1)*

